REMARKS

This is in response to the Office Action mailed on May 13, 2008, in which claims 1-28 were pending. Claims 1 and 2 were rejected as anticipated by Akao. Claims 1-4, 6-10, 12-19 and 24-28 were rejected as obvious over Akao in view of Lehtonen. Claims 5, 11 and 20-23 were rejected as obvious over the Akao/Lehtonen combination further in view of either Stougaard or Ernst. Claim 27 is amended to more clearly define the invention, and new claims 29 and 30 are added. As explained further below, all of claims 1-30 are in condition for allowance, and reconsideration and notice to that effect are respectfully requested.

The Office Action rejected claims 1-28 as failing to comply with the written description requirement due to the term "non-aqueous", citing the portion of MPEP 2173.05(i) which states that the "mere absence of a positive recitation is not basis for an exclusion." Applicant traverses this rejection. Two sentences later, MPEP 2173.05(i) clarifies that "Note that a lack of literal basis in the specification for a negative limitation may not be sufficient to establish a *prima facie* case for lack of descriptive support. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993)." That is, the fact that Applicant's original disclosure did not contain the word "non-aqueous" does not necessarily mean that the term "non-aqueous" cannot be used in the claims. As noted in the Office Action, the term "non-aqueous" positively excludes aqueous products. In the instant case, Applicant well described the non-aqueous aspect of the invention. As noted in the abstract and later at page 7 in the specification, "the composition includes glucose oxidase in an amount of between 1 and 100 activity units (U) per gram, catalase in an amount of between 1 and 300 activity units (U) per gram, dextrose in an amount of between about 20 and 99 percent by weight, and sodium bicarbonate in an amount of between about 1 and 80 percent by weight." That is, applicant disclosed a completely non-aqueous list of ingredients, wherein the ranges of dextrose and sodium bicarbonate (and not stating "dry weight") clearly preclude any aqueous usage. About 99 percent dextrose together with about 1 percent sodium bicarbonate and the glucose oxidase and catalase could not possibly be an aqueous product. About 20 percent dextrose together with about 80 percent sodium bicarbonate and the glucose oxidase and catalase could not possibly be an aqueous product. In the preferred embodiment as detailed on page 15, 3,300 units of glucose oxidase, 3,300 units of catalase, 65.5

grams of dextrose and 34 grams of sodium bicarbonate total make a 100 grams of product, which could not possibly be aqueous.

Moreover, the specification amply describes the non-aqueous nature of the present invention in functional terms. As used in the claims, the term "non-aqueous" is used only as applied to the inventive composition prior to contact with the food or other moisture-containing product. The invention is used in product (primarily food) packaging and activates by moisture in the food product to scavenge oxygen within the package. Thus the specification states that the composition can be used in packages "where moisture is present or may become present". Page 6, lines 1-2. "The composition binds oxygen when exposed to moisture, thereby reducing the level of oxygen in a closed (e.g., sealed) space such as a food package or the like." Page 6, line 8-11, lines 23-24 (emphasis added). The composition can be provided in a water permeable "housing", page 6, line 12-13, page 7, lines 18-20, so moisture from the food can enter the housing after the food product is packaged, thereby activating the oxygen scavenging to remove oxygen from the sealed food package. The inventive composition can be "placed within packages of any moist product where it will consume oxygen within or entering the package. After the package is sealed and moisture contacts the composition of the subject invention, the oxygen level within the package will decrease and will be maintained at a very low level.". Page 13, lines 9-13 (emphasis added). "Although the oxygen scavenging system of the subject invention contemplates various mechanisms by which the composition effectively "shares" a head or similar space with the packaged product, the critical consideration is that the composition of the subject invention be placed within or be otherwise integrated so as to be within the [food product] package such that it is exposed to moisture." Page 14, lines 2-9 (emphasis added). Though the term "non-aqueous" was never used in the original application, the disclosure clearly teaches a non-aqueous product which is activated by moisture from the food product within the package. As such, the term "non-aqueous" in the claims enjoys descriptive support in the specification and is not new matter, and the written description rejection should be withdrawn.

Claim 27 was rejected as indefinite, with the Office Action stating, "it is unclear what is being claimed, whether a composition or a water permeable enclosure comprising the composition is

being claimed is unclear." The preamble of claim 27 is responsively amended to recite an "enclosed organic oxygen scavenging composition". With this amendment, claim 27 is clear that what is being claimed is the combination of the composition within the water permeable enclosure. The indefiniteness rejection of claim 27 should be withdrawn.

Claims 1 and 2 were rejected as anticipated by Akao (U.S. 5,492,741). The Office Action stated, "While it is recognized that the phrase 'consisting essentially of' narrows the scope of the claims to the specified materials and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, "consisting essentially of' is construed as equivalent to 'comprising". Applicant traverses any holding that the specification and/or claims do not clearly indicate what the basic and novel characteristics actually are. Claim 1 specifies that the invention is a "dry, organic oxygen scavenging composition for enhancing shelf-life of a packaged product", and further specifies that the composition is "suitable for direct contact application to the product of the packaged product with no consumer detectable change in product character". The specification and claim itself makes clear that the functional way in which the composition accomplishes the claimed "enhanced shelf-life" and "no consumer detectable change in product character" is that, once activated by moisture from within the product, the composition scavenges oxygen out of the package headspace, including both an enzymatic oxidase reaction and a catalase reaction, (see the formulas on pages 8 – 10 for the preferred reactions), both carried out in the presence of the buffering agent which maintains "a stable pH during said enzymatic consumption". If a composition does not fulfill all of the following functions of a) enhances shelf life; b) provides no consumer detectable change in product character; c) is activated by moisture from the product; d) scavenges oxygen from the package headspace; e) performs an enzymatic oxidase and/or catalase reaction; and f) uses the buffering agent to maintain a stable pH during said enzymatic consumption, then the composition does not meet the limitations of claim 1.

Akao discloses a laminated or layered packaging material for photographic photosensitive materials and light-shielding bag. The outside layer 4 of the Akao material is generally described as a "wear-resistant heat-resistant flexible sheet", which usually has a metal membrane layer 5 attached

thereto. The outside layer 4 has "an oxygen permeability... of not more than 50 cc/m2.24 hr.1atm.20°C." Col. 33, line 2-15; Col. 7, lines 30-57. The inside layer 3A of the Akao material is generally described as a "wear-resistant flexible sheet" with "heat sealability", such as formed of polyolefin resin. Col. 7, line 66. The central layers of the Akao packaging material include cushioning sheet 1 and adhesive layers 2. The primary material of the cushioning sheet 1 is a thermoplastic resin. Col. 3, line 36, 57-61. The primary material of the adhesive layers 2 is a thermoplastic resin melt adhesive such as a polyolefin resin adhesive. Col. 34, line 12-53. As to the cushioning sheet 1 and adhesive layers 2, Akao states, "at least one of the above oxygen scavenger, deodorant, [etc.] is incorporated into the cushioning sheet... or an adhesive layer in an amount of 0.01 to 30 wt.%.". Col. 32, line 63 – Col. 33, line 1; see also Col. 36, line 54-57. As to the oxygen scavenger possibly incorporated into the cushioning sheet 1 or adhesive layers 2 in an amount up to 30 wt. %, Akao discloses a composition which can be any of a long list of materials including glucose and glucose oxidase or mixtures thereof. One preferable oxygen scavenging composition for inclusion in the cushioning sheet 1 or adhesive layers 2 is "mixture compositions of iron and at least one material selected from the group consisting of... hydrosulfite and calcium hydroxide or sodium bicarbonate and activated carbon..." Col. 31, lines 8-22. Akao does not disclose or suggest that the iron/hydrosulfite/sodium bicarbonate/activated carbon combination should itself be further combined with glucose and glucose oxidase, but also does expressly not preclude the possibility.

A first question to be asked is why Akao incorporates an oxygen scavenging material into the central layers of the cushioning sheet 1 or adhesive layers 2, rather than in the inside layer 3A. The Akao patent seems to suggest that the purpose is to prevent oxidative degradation in polyolefin resins, see Col. 9, line 34-62, pulling oxygen from the packaging material itself rather than pulling oxygen from the headspace of the package. Thus, following the teachings of Akao and assuming a combination of different oxygen scavengers to prevent oxidate degradation of the polyolefin inside layer 3A, of a polyolefin cushioning sheet 1 or a polyolefin resin adhesive 2, the cushioning sheet 1 or adhesive 2 could possibly include up to 30 wt. % of a mixture of glucose, glucose oxidase, iron, hydrosulfite, sodium bicarbonate and activated carbon. Because the purpose of the Akao oxygen scavenging material is to pull oxygen from the polyolefin resin, Akao does not disclose or suggest

that the oxygen scavenging material should be directly accessible to any gas within the headspace.

In assessing the patentability of claim 1 with respect to Akao, the question to be asked is whether such a packaging material – with a combination of oxygen scavenging materials up to 30 wt. % in a middle layer between polyolefin inside and outside layers, would fulfill the basic and novel properties of claim 1. Granted, the Akao packaging material as a whole may perform the two claimed functions of a) enhancing shelf life; and b) providing no consumer detectable change in product character. However, the Akao material fails to perform the remaining basic and novel properties of the invention. The up to 30 wt. % of a mixture of glucose, glucose oxidase, iron, hydrosulfite, sodium bicarbonate and activated carbon in the polyolefin middle layer 1 or 2 is not likely to be significantly activated by moisture from the product. The purpose of the Akao oxygen scavenger is not to scavenge oxygen from the package headspace, but rather to prevent oxidate degradation of the polyolefin material. The polyolefin based inner layer 3A would essentially prevent the Akao oxygen scavenger from having any effect on the package headspace. Given the large amount of polyolefin resin (by far the primary ingredient) as well as iron, hydrosulfite and activated carbon present, the glucose oxidase is unlikely to perform an enzymatic oxidase reaction on the glucose. Further, given the large amount of polyolefin resin (by far the primary ingredient) as well as iron, hydrosulfite and activated carbon present, the sodium bicarbonate is likely to have no pH stabilizing effect during any negligible enzymatic oxidase and/or catalase reaction which does occur. That is, even if a worker skilled in the art were to consider the combination of the glucose, glucose oxidase and sodium bicarbonate from the laundry list of ingredients listed as oxygen scavengers at Col. 30, line 62 – Col. 31, line 22, the worker would realize that the existence of the polyolefin based inner layer 3A and the at least 70 wt. % polyolefin based cushioning sheet 1 or adhesive 2 would tend to prevent moisture from reaching the enzyme and prevent the enzymatic reaction from occurring, and would also understand the purpose of the sodium bicarbonate is not to control pH during enzymatic consumption of the glucose.

In summary, even if glucose, glucose oxidase and iron/hydrosulfite/sodium bicarbonate/activated carbon were selected from the laundry list of ingredients listed as oxygen scavengers at Col. 30, line 62 – Col. 31, line 22 of Akao, the resultant packaging material would not

attain the enzymatic consumption and stable pH during enzymatic consumption required in the claim and would not have the basic and novel properties of the claimed invention. Both the significant amount of polyolefin based resin in the Akao cushioning sheet 1 or adhesive 2 as well as its placement behind the wear-resistant flexible sheet 3A take the Akao material outside the "composition consisting essentially of a plurality of dry ingredients consisting essentially of an enzyme system, a suitable energy source for said enzyme system, and a suitable non-aqueous neutralizing agent for neutralizing acid produced during enzymatic consumption of said energy source and maintaining a stable pH during said enzymatic consumption" limitations of claims 1. The rejection of claims 1 and 2 should be withdrawn.

Claims 3, 4, 6-10, 12-19 and 24-28 were rejected as obvious over Akao in view of Lehtonen et al. (U.S. 4,996,062). Claims 5 and 11 were rejected as obvious over Akao in view of Lehtonen and Stougaard (U.S. 6,251,626). Claims 20-23 were rejected as obvious over Akao in view of Lehtonen and Ernst (U.S. 5,284,871).

Lehtonen teaches the type of prior art glucose oxidase/glucose/catalase oxygen binding composition discussed in the background of the application. Specifically, Lehtonen teaches the use of an organic oxygen scavenging enzymatic composition which can be either dry or wet. In the wet form, the Lehtonen composition is a "mixture of the enzymes glucose oxidase and catalase with water, buffering agents or stabilizers and other enzymes or glucose if needed". Col. 5, line 53-55. In the dry form, the Lehtonen composition is "the mixture of enzymes with a carrier, such as starch, talc, cellulose or other inert solid material", and "glucose is also added". Col. 5, lines 57-59, 65. That is, Lehtonen expressly considers the use of "buffering agents" for the liquid form of its composition, but does not disclose or suggest the use of any "buffering agent" for the dry form of its composition. Further, while noting that enzyme activity is highly dependent upon pH, Lehtonen does not appear to identify any ingredients for maintaining pH during enzyme activity, but merely suggests varying the levels of enzyme used and the relative amounts of glucose oxidase to catalase. Col. 7, line 11-18.

In rejecting claim 3, for instance, the Office Action combined the catalase of Lehtonen into the Akao product. However, as explained above, even if a worker skilled in the art added catalase to

the Akao cushioning sheet 1 or adhesive 2, the significant amount of polyolefin based resin in the Akao cushioning sheet 1 or adhesive 2 as well as its placement behind the wear-resistant flexible sheet 3A take the Akao material outside the "consisting essentially of" claim. Further, considering Lehtonen as the basic reference, Akao does not disclose or suggest that sodium bicarbonate should be added to an enzymatic oxygen scavenger to maintain a stable pH. The sodium bicarbonate of Akao, listed only in combination with iron, hydrosulfite and activated carbon and only in a total amount of no more than 30 weight percent within middle layer of the cushioning sheet 1 or adhesive 2, would not be viewed as a buffering agent for maintaining a stable pH during enzymatic consumption of the glucose.

Similarly, neither Stougaard nor Ernst would teach a worker skilled in the art to use three specific ingredients from the potential oxygen scavengers within the Akao cushioning sheet 1 or adhesive 2 instead for moisture activated oxygen scavenging from the headspace of a package. The significant amount of polyolefin based resin in the Akao cushioning sheet 1 or adhesive 2 as well as its placement behind the wear-resistant flexible sheet 3A take the Akao material outside the "consisting essentially of" claim. The sodium bicarbonate of Akao, listed only in combination with iron, hydrosulfite and activated carbon and only in a total amount of no more than 30 weight percent within middle layer of the cushioning sheet 1 or adhesive 2, would not be viewed as a buffering agent for maintaining a stable pH during enzymatic consumption of the glucose. The rejection of all claims 3-28 based upon Akao in combination with other references should be withdrawn.

Claim 26 requires, inter alia, "an effective amount of a dry neutralizing agent for buffering reaction products formed during enzymatic activity of said enzyme system subsequent to direct application of the composition upon said foodstuff in furtherance of oxygen scavenging." Claim 27 requires, inter alia, the "composition being disposed within a water permeable enclosure for direct contact with the food stuff within the package for the food stuff." Claim 28 requires, inter alia, the "composition thereby in direct contact with said foodstuff in said container." Though not "consisting essentially of" claims, the combination of Akao and Lehtonen does not disclose or suggest the inventions of claims 26-28. In particular, Akao teaches oxygen scavenging from the polyolefin based cushioning sheet 1 or adhesive 2. Buried within cushioning sheet 1 or adhesive 2, Akao does

not disclose or suggest direct application of its oxygen scavengers upon foodstuffs in the package or within a water permeable enclosure for direct contact with the food stuff. The rejection of claims 26-28 should be withdrawn.

New claim 29 requires the enzyme system, the energy source and the neutralizing agent to all be in powdered form. Basis is found at page 8, line 1, and no new matter is added. New claim 30 is a strict "consisting of" claim, listing the preferred ingredients and ranges for each, with each of the ingredients and ranges already occurring in existing claims. These claims are not disclosed or suggest by any combination of the cited references, and should also be allowed.

The application containing pending claims 1-30 is in condition for allowance. Reconsideration and notice to that effect is respectfully requested. The Examiner is invited to contact the undersigned at the telephone number listed below if such a call would in any way facilitate allowance of the application.

The Commissioner is authorized to charge payment of any additional fees associated with this paper or credit any overpayment to Deposit Account No. 50-2998, Deposit Account Name Shewchuk IP Services.

Respectfully submitted,

SHEWCHUK IP SERVICES, LLC

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